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FinTech and Banks: Strategic Partnerships That Circumvent State Usury Laws*

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Abstract

Previous research has found evidence suggesting that financial technology (FinTech) lenders seek out opportunities in markets that have been underserved by mainstream banks. The research focuses primarily on the effect of bank market structure, limited income, and economic hardship in attracting FinTech companies to underserved markets. This paper expands the scope of FinTech research by investigating the role of interest rate regulation of consumer credit and institutional risk segmentation in FinTech lenders' efforts to solicit new customers in the personal loan market. We find that strategic partnerships between FinTech companies and specialist banks target marginal-risk, near-prime, and low-prime consumers for credit card and other debt consolidation loans. These FinTech-bank partnerships especially target marginal consumers in states with low interest rate ceilings. Mainstream banks largely avoid higher-risk consumers, and low rate ceilings inhibit consumer finance company lending, which historically has been the major source of personal loans for higher risk consumers and may compete with banks at the margin. In partnering with the specialist banks, the FinTech lenders are able to take advantage of federal preemptions from state rate ceilings to lend profitably to higher-risk consumers in states with low rate ceilings to compete in these markets.

Keywords: Consumer Credit, Access to Credit, Interest Rate Cap, Financial Regulation, FinTech.

JEL classification: G21, G23, G4

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1. Introduction

Financial technology (FinTech) company partnerships with specialist banks commonly market personal loans for credit card or other debt consolidation. These FinTech-bank partnerships use online platforms to facilitate origination of loans through a partner bank and use proprietary underwriting algorithms to supplement conventional underwriting criteria. Over the past decade, the number of FinTech companies has increased alongside loan volume.

Evidence from previous research suggests that FinTech lenders seek opportunities in markets that have been underserved by mainstream banks. These studies focus primarily on the effect of bank market structure, low income, and economic adversity in attracting FinTech companies to underserved markets. For example, [Buchak et al. \(2017\)](#) find that FinTech penetration in residential real estate lending is positively associated with larger minority populations, lower unemployment, and higher market concentration. [Havrylchuk et al. \(2020\)](#) find that FinTech lenders expanded in areas with lower-density branch networks. [Jagtiani and Lemieux \(2018\)](#) find that a large FinTech firm's (LendingClub) originations of personal loans for debt consolidation were associated with greater concentration in credit card lending, fewer bank branches per capita, and weaker local economies. [Cornaggia, Wolfe, and Yoo \(2018\)](#) find that FinTech presence was associated with lower personal loan volume at banks in less competitive markets, while volume at banks in more competitive markets appeared largely unaffected. [Tang \(2019\)](#) finds that consumers who are considered marginal by banks and consumers seeking small amounts of credit are most likely to benefit from credit expansion opportunities offered by FinTech firms. Examining data from a large FinTech firm, [Balyuk \(2019\)](#) argues that FinTech firms reduce information imperfections in consumer credit markets, leading to better consumer outcomes, including reduced bank rents, increased speed and convenience in obtaining credit, and broadened financial inclusion. [Di Maggio and Yao \(2020\)](#) find that FinTech borrowers seeking a personal loan tended to have lower credit scores than bank borrowers but generally were not subprime. FinTech lenders sought out riskier consumers than banks at first but later expanded their market share by extending credit to less risky consumers.¹

The underserved market investigated by this study is the personal loan market for risky consumers. Most previous studies focus on FinTech firms' and banks' provision of personal loans used for debt consolidation and other purposes. They have not considered personal loans from consumer finance companies, which have traditionally been the major source of personal loans for higher-risk consumers ([National Commission on Consumer Finance, 1972](#); [Durkin et al., 2014](#)). Mainstream banks generally have avoided higher risk consumers. This segmentation is partly the consequence of historical risk tolerance, but regulation has also played a role. In some states, consumer finance companies commonly had higher interest rate ceilings and lower loan size limits than banks. This difference meant that small personal loans to higher-risk consumers tended to

¹Similar results have been found for FinTech participation in the small business credit market. For example, see [Erel and Liebersohn \(2020\)](#) or [Balyuk et al. \(2020\)](#).

be almost the exclusive province of finance companies, and banks made larger loans to lower-risk consumers (Rogers, 1975; Durkin et al., 2014; Durkin, Elliehausen, and Hwang, 2016).² In other states, where low rate ceilings made high-risk and small dollar loans unprofitable, risky consumers experienced rationing. FinTech firms operate both alone as finance companies or in partnership with a bank. Where they fit in the institutional structure of the personal loan market has not been fully examined.

Despite the tendency to segment the market based on risk, the risk profiles of bank and finance company customers, to some extent, overlapped (Boczar, 1978; Durkin and Elliehausen, 2000), suggesting that these sources competed at the margin. Federal regulation permitting national banks and banks insured by the Federal Deposit Insurance Corporation (FDIC) to charge interest rates allowed by their home states facilitated interinstitutional competition but did not eliminate risk segmentation in the market for personal loans. Many banks continued to be reluctant to lend to higher-risk consumers.

The federal regulations that allowed a bank to charge rates permitted in its home state provided an opportunity for some banks located in high- or no-rate-ceiling states to partner with FinTech companies. Partner banks could legally charge rates that reflect the risk of loans, which enabled them to originate loans to riskier consumers in low-rate states. When partnered with a bank, FinTech companies are able to access low-rate ceiling markets that other finance companies find unprofitable.

This paper investigates the influence of interest rate regulation on credit availability for marginal consumers in personal loan markets. Using data on solicitations (an indicator of credit supply), we find that FinTech-bank partnerships heavily targeted near- and low-prime consumers in states with restrictive interest rate ceilings. The partnerships did not heavily solicit high-prime consumers, regardless of rate-ceiling regulation. They also appeared to have little interest in subprime consumers in high-rate states. However, FinTech-bank partnerships moderately solicited subprime consumers in states with low rate ceilings, likely because they faced relatively little competition in these states. As finance companies without bank partners cannot operate profitably in low-rate states, our results show that finance companies heavily solicited subprime consumers in high-rate states. In contrast, banks showed little interest in consumers in any part of the risk spectrum other than the high-prime part. Notably, our data also allow us to confirm payday lenders little-known, but significant participation within the installment loan space.

The remainder of this paper proceeds as follows. Section 2 discusses how state interest rate ceilings affect the structure of consumer credit markets. Section 3 provides details on our research design and data used in this study. Section 4 discusses our empirical analysis and results. Section 5 concludes.

²Smaller loans are also relatively more costly to produce than larger loans because much of the cost of producing a loan is fixed. Costs are incurred largely because a loan is made and are not especially sensitive to the amount of the loan. Consequently, breakeven interest rates are higher for smaller loans than for larger loans. This fact prevents banks from making smaller loan sizes, which risky consumers are better able to afford than lower-risk bank borrowers. See Chen and Elliehausen (2020).

2. Rate Ceilings, Credit Availability, and the Emergence of FinTech-Bank Partnerships

Interest rate ceilings have existed long before the emergence of FinTech-bank partnerships.³ When a rate ceiling is less than the market rate, credit is often rationed. Lenders may consolidate offices or exit the market completely. The market for personal loans has been especially exposed to risks of rate regulation (National Commission on Consumer Finance, 1972; Durkin et al., 2014). The emergence of non-bank lender-bank partnerships is a market response to limitations resulting from regulatory restrictions. This model was used in the 1990s by payday lender-bank partnerships to circumvent restrictive state regulations (Stegman, 2007), and it continues today with the FinTech-bank partnerships explored in this paper.⁴

2.1. A Brief History of the State Regulation of Consumer Credit

Historically, consumer credit in the United States has been regulated by the states, whose primary concerns were the price of credit, nonprice terms, and creditor conduct.⁵ States regulated credit prices through interest rate ceilings. State credit price-ceiling laws generally included usury laws and a variety of special laws allowing higher rates than those allowed under usury laws for specific types of credit from certain classes of lenders. States also hoped to influence other significant characteristics of credit offerings in the marketplace by restricting market entry to “legitimate” lenders through licensing and other requirements. State laws further provided for limits on creditors’ rights in the case of default (creditor remedies).

State regulation of interest rates—in particular, the establishment of ceilings for interest rates—has unquestionably exerted a tremendous influence on the development of consumer credit institutions and markets in the United States. Restrictions on entry and creditors’ remedies were always closely connected and justified in the same way as rate ceilings, as part of a regime of controlling the price and character of credit service. The underlying rationale for the regulations included, first and foremost, attempting to protect unsophisticated borrowers from unneeded credit, uninformed use of credit, and harsh credit terms. They also were intended to redress unequal bargaining power

³Changes in state rate ceilings are infrequent. Political measures and economic conditions have little or no effect on ceiling rates (see Glaeser and Scheinkman, 1998).

⁴Other known models of strategic partnerships include those between specialized finance companies and small banks with the purpose of circumventing state laws (Bhattacharyya, 2021), those between tax preparation firms and banks for the issuance of tax refund anticipation loans (the loans are repaid by a customer’s tax refund and are issued through the tax preparation firm in partnership with a bank, with the consumer being required to file the tax returns electronically (Duffy, 2004; Millerbernd, 2021)), those between crypto lenders and banks (Crosman, 2018), and those between credit unions and either FinTech (Gargano, 2021) or buy now, pay later (BNPL) companies (Adams, 2021). Aside from the “financial institution with financial institution” model, embedded finance evolved to address various market needs. For example, Tab Bank in Utah was founded 23 years ago as an affiliate of a chain of truck stops with the purpose of providing financial support to truckers on the road (Crosman, 2021).

⁵Until passage of the federal Truth in Lending Act (TILA) in 1968, the states were the primary regulators of consumer credit in the United States. TILA’s concern was mostly disclosure rather than regulation of credit prices or terms. With the passage of the original Equal Credit Opportunity Act in 1974, the federal government sought to ensure fairness in credit granting and promote credit availability, especially for historically underserved consumers.

arising from borrowers' urgent need or lenders' market power and to discourage prodigal spending and excessive indebtedness.

Despite relaxation of many state interest rate ceilings for consumer credit in the 1970s and 1980s, many states still retained interest rate restrictions on consumer credit. Significant in relaxing the influence of interest rate ceilings on consumer credit during these years was the rise of interstate competition and Supreme Court decisions on permissible rates for interstate banks.

In 1978, the U.S. Supreme Court in *Marquette National Bank v. First Omaha Service Corporation* ruled that national banks could charge interest rates permitted by the lending bank's home state regardless of the rate permitted by the borrower's state of residence. Until recently, this significant court ruling had its greatest effect on the credit card market, as it enabled credit card companies to expand their offerings geographically to consumers located across states with various interest rate ceilings. As a result of the *Marquette* ruling, credit card companies moved to states with high or no credit card rate ceilings, and the credit operations of many large retail stores and consumer finance companies were acquired by or otherwise became affiliated with national banks and their subsidiaries. We observe a similar phenomenon with FinTech companies. In the current environment, as the restrictive interest rate ceilings in some states limit their access, FinTech companies strategically partner with banks in order to access those markets.

The effects of interest rate ceilings in personal loan markets have been largely discussed, and a significant amount of evidence developed over many years suggests several conclusions about them (Durkin et al., 2014):

- State interest rate ceilings restricted credit availability when set at levels that were lower than equilibrium market rates for higher-risk borrowers. When rate ceilings were set at higher levels, higher-risk borrowers were less likely to experience reductions in credit availability.

- Different rate ceilings for different institutional types of lenders tended to segment consumer credit markets (Rogers, 1975), with lenders that had higher ceilings (until recently, finance companies) lending to higher-risk borrowers more frequently than institutional types that had lower ceilings (banks). Such restrictions tended to reinforce banks' preference to specialize in the low-risk segment of the market.

- Despite market segmentation, empirical risk distributions of bank and finance company borrowers partly overlapped (Boczar, 1978). That many finance company borrowers had risk characteristics similar to those of bank borrowers suggests that these finance company customers may have been able to obtain loans from banks and that banks and finance companies may have competed over (at least some part of) the risk distribution of consumers. As researchers did not have all variables related to risk, this result is only suggestive.

- Observed interest rates were not generally at the state rate ceilings unless ceiling rates were already low (National Commission on Consumer Finance, 1972). Average interest rates for unsecured installment loans charged by banks in high-ceiling states were not much different from average rates in low-ceiling states, and interest rates for considerable shares of finance company personal installment loans were below rate ceilings.

2.2. The Special Cases of Arkansas and Iowa

Arkansas is a popular place to study effects of rate ceilings because of its very low rate ceiling. Unlike most states, Arkansas's usury limit is constitutional, not statutory, and is currently set at 17 percent.

In 1957, the Arkansas Supreme Court affirmed that all forms of credit in the state were subject to the 10 percent usury ceiling in the state constitution, regardless of actions the legislature might take (*Sloan v. Sears*, 228 Arkansas 464, 308 S.W., 2d 802 1957). More recently, Arkansas has revised its state constitution and usury law, but the revised law remains restrictive compared with most other states. Today, the ability of Arkansas residents to obtain revolving credit from out-of-state credit card companies headquartered in states with a high rate ceiling or no ceiling vitiates in large part the state's restrictive usury law. However, higher-risk consumers may have difficulty accessing revolving credit. The rate-ceiling limits these consumers' access to personal installment credit from finance companies. [Lukongo and Miller Jr. \(2018\)](#) show that the number of consumer finance company personal loans in Arkansas is lower than the number of such loans in the neighboring states. As no consumer finance company offices are located in Arkansas, the prevalence of consumer finance personal loans in border counties of Arkansas and a virtual absence of such loans in interior counties suggest that Arkansas consumers in border counties travel out of state to get the loans, and, as a result, there is a "credit desert" in the middle of the state. Still, the restrictive effect is clearly evident. Recent work by [Elliehausen, Hannon, and Miller Jr. \(2021\)](#) using a different data source, the Federal Reserve Bank of New York (FRBNY) Consumer Credit Panel (CCP)/Equifax credit bureau data, supports the previously discussed findings on credit availability when rate ceilings are low.

Iowa provides another useful comparison group for studying the geographical consequences of the *Marquette* ruling. Iowa is the only U.S. state that opted out of the interest rate exportation regime provided by the *Marquette* ruling, by invoking the exception to the federal preemption under Section 525 of the Depository Institutions Deregulation and Monetary Control Act of 1980 (see [Brennan and Udell, 2018](#)).⁶ As Iowa is a low interest rate state located between three high interest rate states (Wisconsin, Illinois, and Missouri) and three low interest rate states (Minnesota, South Dakota, and Nebraska), Iowa provides a counterfactual for any developments enabled by the *Marquette* ruling.⁷

⁶Puerto Rico also opted out of the coverage, and several states—Colorado, Maine, Massachusetts, Nebraska, North Carolina, and Wisconsin—previously opted out of the coverage as well but have either rescinded their opt-out or let it expire. (See footnote 18 on page 44148 of the [Office of the Federal Register, National Archives and Records Administration, 2020](#).)

⁷Iowa law allows a maximum interest rate of 5 percent unless a different rate is agreed upon in writing. In that case, the interest rate cannot exceed the state's official usury rate set by the superintendent of banking in accordance with the provisions of Iowa Code Section 535.2(3)(a), consisting of the monthly average of the 10-year Treasury rate plus a 2 percent premium.

2.3. Effects of FinTech Presence in Consumer Credit Markets

The emergence of the FinTech sector added another layer of complexity to the personal loan market. As credit issued by traditional financial institutions such as banks, thrifts, credit unions, and finance companies decelerated in the aftermath of the financial crisis, the FinTech sector emerged to provide credit or refinance debts of borrowers who might otherwise be priced out of the market. FinTech companies target low-prime and near-prime borrowers who are less attractive for banks and who may be able to obtain better loan terms from companies outside of the finance company universe. Given the nascent nature of the field, research results on the effects of FinTech presence in consumer credit markets are mixed. [Adams \(2018\)](#) finds that consumer loans issued by FinTech lenders are primarily used for refinancing various types of consumer debt. [Dore and Mach \(2019\)](#) show that at Prosper, borrowers' credit scores initially increase after they take out loans, and their credit card utilization rates fall relative to nonborrowers. In the longer run, however, total debt levels for Prosper borrowers are higher than those of otherwise similar non-borrowers, but delinquency rates are lower for borrowers. [Danisewicz and Elard \(2018\)](#) show that restricting FinTech presence in a consumer credit market is associated with a significant increase in personal bankruptcy. This result followed the *Madden v. Midland Funding* court verdict, which ruled that above-usury loans issued by banks to residents of Connecticut and New York were null and void if the loans were immediately sold to non-bank entities. Their findings suggest that restricting marketplace lending delays filing for bankruptcy and consistently helps some households avoid bankruptcy.

As interest rate ceilings limit non-partnered FinTech presence in some states, FinTech companies can circumvent the usury rate legislation and partner with specialist banks in order to avoid these states' low(er) interest rate ceilings. As a result of this arrangement, the FinTech sector is segregated into (1) companies that function more like finance companies and end up being restricted in low-rate states and (2) companies that place themselves in a position to take advantage of weaker competition from finance companies and other FinTechs in such states.

2.4. FinTech-Bank Partnership Mechanism

The FinTech-bank partnership opportunity is born at the intersection of state usury rate ceiling restrictions and the *Marquette* ruling. Powered by the *Marquette* ruling, banks are able to export their home state interest rates to most states, irrespective of the state's interest rate ceiling.⁸ Limited by the state usury laws, FinTech companies operating alone find that doing business in states with low interest rate ceilings is less profitable than in high- or no-rate ceiling states. However, some FinTech companies have partnered with banks to circumvent the usury rate legislation by offering joint personal loan offers. When these partnerships occur, the bank becomes the "true

⁸Iowa is an exception discussed earlier.

lender” by making the loan on behalf of the FinTech company.⁹ The bank holds onto the loan for a number of days or even months and may retain a certain percentage of the loan production. For example, LendingClub reveals in its 2019 third quarter 10-Q report that WebBank holds onto its loans for two business days, after which the loans are purchased by the marketplace lender at par plus accrued interest.¹⁰ Cross River Bank retains 5 to 10 percent of the monthly loan production and tends to hold onto the loans for six to nine months. Loans are then sold back to the FinTech company, which in turn sells them in either the private or public securitization market (see Scully, 2015).

Importantly, in order for these partnerships to be profitable, the banks that are typically involved in joint offerings, the specialist banks, need to be either exempt from rate ceilings or located in states with high or no consumer finance rate ceilings. In the next section we note how WebBank, one of the major specialist banks engaged in partnerships, has a Utah industrial loan bank charter, that exempts it from state lender licensing laws, interest rate ceilings, and money service business laws, and Cross River Bank, the other major specialist bank engaged in partnerships, is located in New Jersey, a state that has no limits on loans made by banks.

These arrangements can be mutually beneficial. FinTech companies are able to access markets previously considered insufficiently profitable and earn transaction fees for their role in processing the loan applications. LendingClub discloses in its 2019 third-quarter 10-Q report that the amount of fees charged is based on the terms of the loan, including grade, rate, term, and channel—and that as of September 30, 2019, these fees ranged from 0 to 6 percent of the initial principal amount of a loan.¹¹ In addition, FinTech lenders benefit from their partner banks having the regulatory, compliance, and licensing frameworks in place in the respective states in which they choose to operate.

Banks’ revenues in such a partnership mainly come from loan issuance fees. For example, Cross River Bank charges a processing fee between 30 and 100 basis points per loan, conditional on the volume of loans processed; on the loans it retains, the bank is generally open to a revenue-share structure with the platform such that if the platform elects to work with another bank, it has to pay a fee of 10 to 20 basis points per loan until the contract ends (see Scully, 2015). In addition, banks may benefit from the technological novelty FinTech companies bring to these partnerships.

Both FinTech and bank partners are subject to approbation and regulatory scrutiny. Regulatory scrutiny is especially likely for bank partners in FinTech-bank partnerships. Bank regulators used supervisory guidance to discourage banks from partnerships offering payday loans and refund anticipation loans—loans issued through tax preparation firms and repaid with tax refunds.¹² For

⁹The offer details typically include information on the true lender. See figures A1 through A3 in Appendix A for sample offers.

¹⁰See page 49 of Form 10-Q for 2019:Q3.

¹¹See page 68 of Form 10-Q for 2019:Q3.

¹²For example, bank regulators did so via Operation Choke Point, a Department of Justice initiative that investigated banks and businesses if they engaged in dealings with companies considered to be at a high risk for fraud and money laundering, which included payday lenders.

FinTech companies, loss of bank partnerships may jeopardize the viability of their business models.

2.5. Partner Banks

But what do we know about these banks that partner with FinTech companies? Although in our data (discussed below) we observe a number of banks that partner with marketplace lenders, we will focus the discussion around WebBank and Cross River Bank, the predominant banks in FinTech-bank partnerships.

WebBank is a \$961 million FDIC-insured state-chartered industrial bank located in Salt Lake City, Utah, which was founded in 1997.¹³ As of the end of 2019, personal loans represent close to 50 percent of its total assets. WebBank is owned by Steel Partners Holdings LP, a diversified international holding company. Steel Partners Holdings L. P. reveals in its Q3 10-Q report that WebBank represents its financial services business:¹⁴

“WebBank engages in a full range of banking activities including originating loans, issuing credit cards and taking deposits that are federally insured. WebBank originates and funds consumer and small business loans through lending programs with unaffiliated companies that market and service the programs (“Marketing Partners”), where the Marketing Partners subsequently purchase the loans (or interests in the loans) that are originated by WebBank. WebBank retains a portion of the loans it originates for its Marketing Partners. WebBank also has private-label financing programs that are branded for a specific retailer, manufacturer, dealer channel, proprietary network or bank card program. WebBank participates in syndicated commercial and industrial as well as asset-based credit facilities and asset-based securitizations through relationships with other financial institutions.”

According to the Utah Department of Financial Institutions, as a Utah industrial loan bank charter, WebBank is subject to the same regulatory framework as commercial banks and is authorized to make all kinds of consumer and commercial loans. The bank can accept federally insured

¹³Industrial banks evolved from “Morris Plan” banks, named after Arthur J. Morris, who devised in 1910 a method to provide small loans that did not violate usury laws. Their customers were primarily industrial workers. Under the Morris Plan, lenders would offer a loan at the legal rate allowed under the usury law. Interest was quoted on a discount basis, which collects interest in advance out of the loan principal. This practice reduced the lender’s outlay, thereby increasing the revenue relative to other methods for quoting interest (see [Mors, 1965](#)). The Morris Plan also required a simultaneous purchase on installments by the borrower of a non-interest-bearing certificate of deposit from the bank in the same amount as the loan principal. When the certificate was fully paid for, it would be used to pay off the loan ([Michelman, 1966](#); [Oeltjen, 1975](#)). This arrangement increased the yield to the bank by bringing its funds back before the actual maturity of the loan contract.

¹⁴See page 35 of [Form 10-Q](#) for 2019:Q3.

deposits, but it cannot issue demand deposits if its assets are greater than \$100 million.¹⁵ However, banks that fall under the Utah industrial bank charter are not considered subject to the Bank Holding Company Act. Industrial banks are exempt from state lender licensing laws, interest rate ceilings, and money service business laws. Industrial banks have the advantage of reduced cost of funding in part due to access to the Federal Reserve discount window. These types of banks are supervised only by the Utah Department of Financial Institutions and the FDIC, thus circumventing Fed oversight. Importantly, given that WebBank is chartered in Utah, it has no small-loan interest rate cap because Utah has no state interest rate limits. As a Utah industrial bank, WebBank can legally charge interest rates that exceed other states' rate ceilings—a key feature for the FinTech partnership. Other banks engaged in partnerships that are located in Utah are FinWise Bank and First Electronic Bank.

Cross River Bank is a \$2 billion FDIC-insured state-chartered bank located in New Jersey and created in 2008 with the specific purpose of facilitating FinTech partnerships. As of the end of 2019, nearly half of Cross River Bank's total assets consist of personal loans. In March 2019, the bank was awarded Grow New Jersey credits by the New Jersey Economic Development Authority, thus enabling it to expand within the state and encouraging it not to leave the state.¹⁶ The bank is venture funded, with investors such as venture companies Andreessen Horowitz, Battery Ventures, Ribbit Capital, and KKR & Co. According to the state's governor, "Innovative FinTech companies like Cross River choose to locate in New Jersey because of our unrivaled pool of diverse, tech-savvy talent, and the unique advantages of our location." Cross River Bank is subject to regulation and supervision by the state of New Jersey and the FDIC and is able to accept deposits. Although unlicensed lenders and sales finance companies may charge an interest rate up to 16 percent on personal loans in New Jersey, the state has no limits on loans made by banks, which enables Cross River Bank to partner with FinTech lenders.

2.6. Legislative Challenges: *Madden v. Midland* Ruling

In 2015, FinTech lenders were affected by the *Madden v. Midland Funding* ruling, discussed at length by [Danisewicz and Elard \(2018\)](#), when the U.S. Second Circuit Court of Appeals—presiding over Connecticut, New York, and Vermont—overturned a lower court ruling that loans originated to residents of those states with an interest rate exceeding the existing usury limits are null and void if the loans are held by nonbank firms.

¹⁵According to instructions in the Federal Reserve Board's FR 2900, Report of Deposits and Vault Cash for banks, savings and loan associations, and savings banks instructions, demand deposits are deposits that are payable immediately on demand, or that are issued with an original maturity or required notice period of less than seven days, or that represent funds for which the reporting institution does not reserve the right to require at least seven days' written notice of an intended withdrawal. Demand deposits are transaction accounts.

¹⁶Grow New Jersey is a job-creation and incentive program created to strengthen New Jersey's economic position. According to the program's website, businesses that are creating or retaining jobs in New Jersey may be eligible for tax credits and bonus credits.

Saliha Madden, a New York resident, became delinquent on credit card debt. The credit card-issuing bank deemed the debt to be uncollectable and sold it to Midland LLC, a debt collection firm. Midland tried to collect the debt at a 27 percent rate, which exceeded New York's 25 percent rate ceiling. Madden sued, alleging that the loan was usurious because Midland was not a bank and therefore was not entitled to preemption of the New York rate ceiling.

The penalty for violation of the usury ceiling in New York and Connecticut is forfeiture of interest and principal. The penalty in Vermont is forfeiture of only the interest above the ceiling. Although not directly related to FinTech lending, this ruling affected the specialist bank-FinTech partnership model described in section 2.4 that allows the bank to issue the loans and subsequently sell the loans to a nonbank partner. The Second Circuit ruling held that the exemption from state rate ceilings no longer applies once loans are sold to nonbank firms.

The *Madden* ruling applies only to loans originated to residents of Connecticut, New York, and Vermont, but it may more broadly raise concerns about risk in loan sales and solicitations.

3. Research Design and Data

We use a quasi-experimental design. Our dependent variable is the solicitation mail volume sent to households by different types of lenders: FinTech company-bank partnerships (hereafter, FinTech-bank partnerships), finance companies without a bank partner (hereafter, finance companies), payday lenders, banks without a FinTech company partnership (hereafter, mainstream banks), FinTech lenders without the participation of banks (hereafter, FinTech), and banks that are typically involved in partnerships making independent offers (hereafter, specialist banks).

Our treatment groups consist of consumers in different credit risk classes residing in states with low or high rate ceilings for personal loans (subprime/low rate, subprime/high rate, near prime/low rate, near prime/high rate, low prime/low rate, low prime/high rate, high prime/low rate, and high prime/high rate). Our comparison group consists of high-prime consumers residing in states with high rate ceilings or no ceiling for personal loans. High-prime consumers in high-rate states would be least constrained by their credit risk or lenders' ability to offer small personal loans profitably. The substantive restrictions imposed on nonbank lenders who operate in states with low interest rate ceilings stimulate some of them to partner with banks in order to circumvent the legislation that makes lending to riskier consumers unprofitable and expand their geographical presence within their target markets. Since some of these lenders successfully circumvent the restrictive state rate ceilings, they end up being able to charge interest rates higher than maximum rates specified in the state legislation (see Table 1). States with high or no interest rate ceilings—South Carolina, Georgia, Texas, Oklahoma, Louisiana, Tennessee, Missouri, Illinois, New Mexico, Kentucky, Alabama, Wisconsin, Indiana, Mississippi, and Idaho—are states in which high-rate consumer finance companies operate.

In addition, to illustrate the effects of the *Madden v. Midland* ruling on credit supply for all lender categories observed, in line with other studies examining the supply of FinTech loans, we

use a differences-in-differences estimation, but we expand the treatment group to include Vermont, in addition to New York and Connecticut. The comparison group consists of personal loan offer solicitations sent to consumers located in all other states.

We use data from three sources. Our primary data source is Mintel Comperemedia (hereafter, Mintel), a data set consisting of monthly unsecured personal loan acquisition, cash advance product, and vehicle title loan offers (solicitations). As the solicitations are credit offers, they are often used as a measure of credit supply.¹⁷ The data represent monthly campaign-level mail volume sent to consumers over a period of ten years, starting with 2010. Mintel randomly selects roughly 4,000 consumers from a pool of 1 million consumers that Mintel purchased from a large survey service provider. The Mintel panel is balanced on four major demographic characteristics: region, age, income, and household size. Each month, about 2,500 consumers participate in the Mintel survey by mailing back to Mintel offers from across the sectors monitored by the company.¹⁸ Mintel motivates participation with raffles offering prizes, such as gift cards. The company records all the offer details in its databases, thus providing insights into the rich landscape of supply offers. Every month, post-collection, the data are sent to TransUnion alongside the name and address of the panelist. TransUnion then appends the VantageScore credit score for every panelist and depersonalizes the information before sending it back to the Federal Reserve Board.¹⁹ Mintel conducts an additional survey of participating consumers to collect household-level demographic and socioeconomic information. This additional information is merged with the mail offer information.²⁰ Finally, Mintel applies weights to the approximately 2,500 consumers participating in the survey to represent the entire U.S. adult population.

Crucially for our analysis, the data enable us to observe clearly, by name, the company sending the offer and its exact brand partner companies, if applicable. (We include in Appendix A several examples of various types of offers made to consumers.) Knowledge of the name of each company in the data set also enables us to categorize the offers by lender type. Mintel data show that in 2019, there were approximately 1.8 billion acquisition offers for unsecured personal loans.²¹ The personal loans category is relatively broad. It includes non-vehicle loans for any personal or household-related expenditure or for consolidating any type of debt. The majority of the observations in the data set include detailed mailing location information.²² More than one-third of these offers are issued by FinTech lenders in partnership with specialist banks (33 percent), with another one-third issued by finance companies (29 percent). The remainder of offers are issued by banks other than those involved in partnerships (15 percent), banks that are typically involved in partner-

¹⁷Dettling and Hsu (2021) and Han, Keys, and Li (2018) discuss the use of solicitations as a measure of supply.

¹⁸If the consumers choose to respond to the respective offer, they send Mintel only the remainder of the offer materials, exclusive of the response portion.

¹⁹Personally identifiable information (PII) is not included in the data set available to researchers.

²⁰The demographic and socioeconomic information collected by Mintel applies to the household head and is representative at the household level, while the VantageScore credit score is that of the panelist.

²¹According to Mintel, solicitations for personal loans represent the largest mail volume category, superseding that for mortgage loans or credit cards.

²²We drop the observations with insufficient geographical information to avoid errors.

ships making independent offers (10 percent), FinTech lenders without the participation of banks (6 percent), payday lenders making installment loan offers (4 percent), other financial institutions (3 percent), and credit unions (less than 1 percent).²³²⁴ Figure 1 shows the annual unsecured personal loan offer mail volume by lender type.

Mintel data allow us to identify the partner banks. We observe the notable participation of the market leaders: WebBank and Cross River Bank, alongside other participants such as First Bank of Delaware, First Electronic Bank, Farmers Merchant Bank, Mid America Bank & Trust Company, County Bank of Rehoboth Beach, Republic Bank, The Brand Banking Company, FinWise Bank, Goldman Sachs Bank USA, First Bank & Trust, and Capital Community Bank. When examining the partnership structure, we note the dominance of WebBank (61 percent of offerings) and Cross River Bank (35 percent of offerings). The FinTech company presence in partnership structures is less concentrated than that of partner banks. LendingClub has the largest share of offerings (41 percent), followed by Best Egg (24 percent). Prosper, Upgrade, and Upstart have much smaller shares of offerings (11 percent, 10 percent, and 6 percent, respectively). Figure 2 shows a diagram of FinTech-bank partnership relationships.

We complement the supply-side information we derive from Mintel data with loan-level information from the two main FinTech lenders: Prosper and LendingClub.²⁵ Prosper data are available at a monthly level starting with 2014, while LendingClub data are available only between January 2014 and December 2017. Both lender data sets allow us to observe the geographic location of the borrower, the loan amount taken, the loan interest rate (Prosper data also include the loan annual percentage rate, or APR), and the borrower's risk score both generated by a traditional credit bureau and supplied by an internal proprietary model used by this type of lender, among other numerous details. In 2017, the most recent year for which we have available data, LendingClub made 443,549 new loans, amounting to nearly \$6.6 billion. That same year, Prosper made 201,906 loans, amounting to \$2.7 billion.²⁶ Examining data for Arkansas, the state with the lowest interest rate ceiling, between 2014 and 2017 for both lenders, we reveal that 36 percent of Prosper's loans and 19 percent of LendingClub's loans issued over the period have interest rates exceeding the state's ceiling rate (Table 1). This information serves as an additional motivating factor for our study.

Finally, in order to compare the mail volume of solicitations to aggregates of individuals with credit scores, we use the FRBNY's quarterly CCP, a database on consumers' credit use and payment performance drawn from Equifax credit bureau records. The anonymized random sample is repre-

²³Percentages may not add to 100 because of rounding. Vehicle title lenders make a small number of offers that appear to be installment loan offers, but the data do not allow the differentiation between traditional installment loan offers and vehicle title loans that are required to be repaid in installments.

²⁴Although payday lenders are known to make primarily cash advance or lump sum offers, our data allow us to observe installment loan offers made by these lenders, which are a newer type of product for them (see Miller Jr., 2019).

²⁵LendingClub's LoanStats data was available to researchers via <https://www.lendingclub.com/> until December 2017.

²⁶In 2019, Prosper made 156,671 loans, amounting to \$2.2 billion. The loan characteristics for the two lenders are similar, with both reporting loan amounts of \$1,000 or \$2,000 to \$40,000—LendingClub with a median of \$12,900 and a mean of \$14,926 and Prosper with a median of \$12,000 and a mean of \$13,713. A stable share of these loans—about 70 percent for both lenders—is used for debt refinancing.

sentative of the population of credit users in each quarter.²⁷ The database contains individual-level data on virtually every debt owed by each consumer and, importantly for our analysis, the credit bureau score, which we use to create aggregates for each credit risk group of borrowers.²⁸ We use a 1 percent sample from the total available 5 percent sample, covering the period between 2010:Q1 and 2019:Q4. At the end of the fourth quarter of 2019, the CCP totaled about 252 million individuals.

4. Empirical Analysis and Results

To identify the role of interest rate regulation of consumer credit and institutional segmentation in FinTech lenders' efforts to solicit new customers in the personal loan market, we first compare the state-level share of mail volume in total mail volume over the period for each lender type. Then, we compare the cumulative mail volume solicitations sent by FinTech-bank partnerships for each credit score category (subprime, near prime, low prime, and high prime) and level of the state consumer finance rate ceiling (with high and low). We also examine the differences in the aggregate mail volume issued by FinTech-bank partnerships before and after the *Madden* ruling in the states representing our treatment group versus all other states. In addition, we use regression analysis to estimate differences in lenders' unsecured personal loan mail offers.

4.1. Personal Loan Solicitations by Type of Lender, Interest Rate Ceiling Category, and Credit Risk Group

We examine the aggregate number of personal loan solicitations over the analyzed period (2010–19). Solicitations are an indicator of credit supply, but it is important to note that they do not directly and uniformly translate into loans. The take-up rate of mail offers is relatively low—for example, using the data available to us, we estimate it to be approximately 9.63 loans per 100 LendingClub solicitations and 12.76 loans per 100 Prosper solicitations. That said, these estimates are likely biased as borrowers can obtain loans by contacting each lender directly, without being solicited via mail. The take-up rate is likely influenced by the local demand and supply characteristics which are not uniform across states, within a state, or among borrower risk profiles. For example, as FinTech lenders in partnership with banks and also acting independently typically compete with finance companies, the take-up rate for FinTech-issued loans could be higher in states with low consumer finance interest rate ceilings, where finance companies cannot operate profitably.²⁹

²⁷The sampling procedure ensures that the same individuals remain in the sample in each quarter and allows for entry into and exit from the sample, so that the sample is representative of the target population in each quarter. See Lee and der Klaauw (2010) for a description of the design and content of the CCP. See also https://www.newyorkfed.org/medialibrary/interactives/householdcredit/data/pdf/data_dictionary_HHDC.pdf.

²⁸The variables include type of credit, type of lender, origination date, account balance, scheduled monthly payments, delinquency, and adverse events associated with credit accounts. Variables also include year of birth.

²⁹Both LendingClub and Prosper show higher take-up rates (20.1 and 25.63 loans per 100 solicitations, respectively) in Arkansas, for example, the state with the lowest consumer finance rate ceiling where no finance companies are operating. These estimates however are biased, as previously noted.

Moreover, as [Lukongo and Miller Jr. \(2022\)](#) and [Elliehausen et al. \(2021\)](#) show that in Arkansas, for example, there is a credit desert in the middle of the state and that there is a higher concentration of consumer loans in the counties bordering the neighboring states, the take-up rate for mail volume solicitations from various lenders could be different in the interior counties versus the exterior counties of the state. Finally, the take-up rate could also differ among borrower credit risk groups, with certain credit constrained groups being more likely to pursue an offer received in the mail than others.

4.1.1. State-Level Lender Share in Total Mail Volume

We first examine the cumulative mail volume distribution at the geographic level looking at a state-level share for each category of lender identified earlier. Our share is constructed as the ratio of all mail volume from each lender type to total mail volume sent between 2010 and 2019 to borrowers in each state. [Figure 3](#) shows the share.

Focusing on the share for the mail volume sent by FinTech-bank partnerships ([Figure 3a](#)), we note that states with lower interest rate ceilings (not hatched) appear to have higher levels of FinTech-bank partnership mail volume than states with high interest rates (hatched). Notably, Arkansas, the state with the most restrictive legislation, has by far the highest FinTech-bank mail volume presence of all states for the observed period. As the most prominent of the low interest rate states, Arkansas has a very low, constitutional interest rate ceiling that does not allow consumer finance companies to operate profitably in the state. It is likely that, of the states with low interest rate ceilings, Arkansas is attractive to FinTech lenders because of the lack of local finance company competitors in the higher-risk market segment. In contrast, a notable exception to the rule is Iowa. We believe this exception is due to Iowa's opting out of the interest rate exportation regime discussed previously. Another exception is West Virginia, which is likely due to legislation prohibiting Prosper and LendingClub from doing business in the state.³⁰

In contrast, mail offers sent by finance companies ([Figure 3b](#)) are concentrated in states with high interest rate ceilings, as the ability of finance companies to lend profitably in low-rate states is limited by the low interest rate ceilings.

FinTech lenders sending out independent mail offers without bank partners ([Figure 3c](#)) and payday lenders making installment loan offers ([Figure 3d](#)) appear mostly indifferent to the interest rate ceiling regime, but, notably, they avoid Arkansas.³¹

Banks of both types, mainstream and specialist, also appear to be indifferent to state interest rate ceiling regimes ([Figures 3e](#) and [3f](#)).

³⁰For example, Prosper explicitly notes on page 55 of its 2021:Q1 [Form 10-Q](#) that "no loans have been originated through the Prosper platform to West Virginians since June 2016." This limitation is referenced as the "West Virginia Matter" and is attributed to an unresolved discussion between the state's attorney general and the lender in reference to the potential violation of West Virginia's Consumer Credit and Protection Act.

³¹Although payday lenders are prohibited in Arkansas, the state's consumers receive installment loan offers from online payday lenders.

4.1.2. Aggregate Number of FinTech-Bank Partnership Offers by Risk Category for Individuals with Credit Scores

Next, we examine the number of FinTech-bank partnership offers received over the period of analysis by borrowers for each of the four risk categories we considered based on Mintel data: sub-prime (VantageScore credit score lower than or equal to 660), near prime (VantageScore credit score greater than 660 and lower than or equal to 719), low prime (VantageScore credit score greater than 719 and lower than or equal to 792), high prime (VantageScore credit score higher than 792). In order to do so, we obtained the credit score distribution as of 2019:Q4 from the FRBNY CCP/ Equifax data. Although Mintel data and the FRBNY CCP use different credit scores—Mintel uses VantageScore credit scores and FRBNY CCP uses Equifax Risk Scores—their credit score distributions can be considered comparable. As such, we sum the mail offer information over the period across the four credit risk categories and divide offers by the number of borrowers in each credit score group in the FRBNY CCP data. Figure 4 shows the results.

FinTech-bank partnerships targeted borrowers with near-prime and low-prime credit scores more than their subprime or high-prime peers, irrespective of their state of residence (Figure 4a). For low-risk borrowers, the state of residence makes little difference, as they receive about the same number of personal loan mail offers—an average of 10 in low-rate states and 9 in high-rate states, respectively, over the observed period. In contrast, the state of residence makes a notable difference for subprime borrowers, as those residing in low-rate states received about 5 more offers than their peers residing in high-rate states, who received an average of 8 offers over the observed period.

In Arkansas, FinTech-bank partnerships heavily targeted near-prime borrowers residing in the state. Near-prime Arkansas consumers received nearly four times as many offers than near-prime consumers residing in other low-rate states—81 offers relative to the 21 received by their peers (Figure 4b). We also note that low-prime borrowers are also much more targeted by the FinTech-bank partnerships than their counterparts in low-rate states, as near-prime borrowers residing in Arkansas received 9 more mail offers than those residing in other low-rate states. The state of residence, makes little difference for subprime borrowers and higher-risk-score prime borrowers.

Particularly interesting about Arkansas is the focus on near-prime borrowers. In low-rate states (excluding Arkansas), the FinTech-bank partnerships target similar proportions of near-prime and low-prime borrowers. In Arkansas, FinTech-bank partnerships focus more heavily on near-prime borrowers.

4.1.3. Aggregate Number of FinTech-Bank Partnership Offers in Light of the *Madden v. Midland* Ruling

In this subsection, we examine the changes in the aggregate number of FinTech-bank partnership offers following the *Madden v. Midland* ruling. Although [Horn and Hall \(2017\)](#) highlight several far-reaching effects of the *Madden v. Midland* ruling, our data enable us to complement

their key finding that the ruling led to a decrease in marketing and lending programs in the states affected, and we show that the *Madden v. Midland* ruling caused uncertainty that had a ripple effect on the supply of personal loans across other geographic areas as well.³² In Figure 5, we contrast the supply trends in New York, Connecticut, and Vermont with those observed across the unaffected states. Before *Madden*, New York, Connecticut, and Vermont solicitations were following an ascending trend, similar to those in other states. However, solicitations in those three states fell sharply following the ruling, while solicitations in other states remained flat. Although solicitations later increased to about pre-*Madden* levels, more recently, subsequent declines for New York, Connecticut, and Vermont were steeper than declines in other states. Uncertainty following the *Madden* decision likely reduced solicitation volume in the affected states, but the uncertainty appears to have had spill over effects across other geographic areas as well.

4.2. Regression Analysis and Results

On average, lenders sent 202 monthly unsecured personal loan solicitations per campaign per 10,000 individuals with credit scores. The number of personal loan solicitations varied widely among lender types. FinTech-bank partnerships had the largest average number of solicitations, 72 per 10,000 individuals with credit scores (Table 2), followed closely by finance companies, with 68.7 per 10,000 individuals. Mainstream banks had an average of 30.1 solicitations per 10,000, about half the personal loan solicitations as the previous two categories. Specialist banks soliciting on their own without a FinTech partner made, on average, 14.9 solicitations. FinTech firms offering personal loans without a partner bank showed an average of 9.21 solicitations per 10,000 individuals, while payday lenders made 7.17 per 10,000. Credit unions and the other lender category made few solicitations and therefore will not be considered in the subsequent discussion.

4.2.1. Personal Loan Solicitations by Type of Lender and Interest Rate Ceiling Category

We look first at the effect of rate ceilings on the volume of solicitations for personal loans of different lender types. The dependent variable is the number of solicitations per 10,000 individuals with credit scores in the respective state of residence for the receiver of the offer in total and for each of the six categories of lenders. Our regression model is

$$Y_{ijt} = \beta_0 + b_1 \cdot Rate_j + \sum_{rit} \beta_j \cdot X_{rit} + \varepsilon_{ijt}, \quad (1)$$

where Y_{ijt} represent solicitations by lender category i in state j and month and year t . $Rate_j$ is an indicator variable that equals 1 if the state has a high rate ceiling for loans from licensed lenders and

³²The other effects include the capping of interest rates according to the usury limits; the exclusion of loans to New York, Connecticut, and Vermont residents from securitization pools or, vice versa, having these loans specifically acquired by special purpose vehicles; and the restructuring of the relationship with the bank partner so that the bank retains an interest on all the loans.

0 otherwise. The X_{rjt} are r variables accounting for economic, credit risk, and life-cycle characteristics that lenders might target for solicitations and time fixed effects to account for seasonality and macroeconomic conditions. With the exception of the state GDP information, which comes from the Bureau of Economic Analysis and we include as a proxy for consumer wealth and employment opportunities in the state, all of the X_{rjt} variables are from Mintel data, including the risk score.³³ ε_{ijt} is the error term. Standard errors are clustered at the state level.

Table 3 presents estimation results in panel A. The coefficient of particular interest is the high-rate-ceiling indicator variable. This coefficient is the mean difference in the number of solicitations in high-rate states (the treatment group) relative to low-rate states (the reference group). FinTech-bank partnerships (column II) and banks (columns VI and VII) solicited less in high-rate states than low-rate states (partnerships, 44.4 per 10,000 fewer solicitations; mainstream and specialized banks, 24 and 12.1 fewer, respectively). Finance companies (column III) solicited more in high-rate states than low-rate states (9.46 solicitations per 10,000, *ceteris paribus*). In soliciting in high-rate states, finance companies would be more likely to be able to charge rates that enabled them to cover the costs of relatively small dollar and risky loans. That mainstream banks solicited less in high-rate states is consistent with banks seeking to make larger loans and to less risky customers and avoiding small-sized loans and risky borrowers. Specialist banks soliciting loans on their own also showed less interest in soliciting loans in high-rate states than in low-rate states.

Significance of borrower characteristics (included in the controls) in this and subsequent estimations suggests that solicitations target areas in which take-up rates and payment performance are favorable. The size and significance of these variables often vary by type of lender, reflecting differences in business practices of different lender types. Using consumers aged 40 to 54—who still may be financing acquisition of durables with debt, have accumulated substantial debts, and benefit from refinancing—as the reference age group, we find that households headed by younger consumers (aged under 25 and aged 25 to 39) and older consumers (55 and older) are less likely than the reference group to be solicited by finance companies, FinTech lenders acting independently, and payday installment lenders.³⁴ Differences in solicitations by income are consistent with institutional risk segmentation. Finance companies solicit most consumers with incomes less than \$25,000. As lower-income consumers tend to have little discretionary income above their normal living expenses, they pose greater delinquency and default risk than higher-income consumers. In contrast, FinTech-bank partnerships solicit least consumers in the lowest income bracket. Finance companies specialize in lending to higher-risk consumers, while FinTech-bank partnerships do not seek out higher-risk consumers for solicitations.

³³In the regressions, we use household heads' VantageScore credit score information from TransUnion included in Mintel data in a depersonalized fashion. We use the population with credit scores in the respective solicitation receiver's state of residence from Equifax to scale our results, as our dependent variables represent solicitations per 10,000 individuals with credit scores for each lender category.

³⁴Recall that in Mintel data, the demographic and socioeconomic information applies to the household head, while the VantageScore credit score is that of the panelist.

The VantageScore credit score points to risk segmentation. Higher VantageScore credit scores are associated with greater solicitations from banks. In addition, higher VantageScore credit scores are associated with fewer solicitations from finance companies, FinTech firms operating without a bank partner, and payday installment lenders. In general, renters are solicited more heavily than owners across lender types. Higher state-level GDP is associated with fewer solicitations by all lenders irrespective of type. Variables for the children, housing type, race, and education are generally not statistically significant.

As previously mentioned, banks historically have avoided high-risk consumers, and finance companies provided credit to high-risk consumers, when the rate ceiling allowed them to do so profitably. Institutional differences in solicitations by the height of the small-loan rate ceiling may reflect continuing differences in risk tolerances of established lenders. Institutional differences may also reveal risk-related perceptions of lending opportunities for relatively recent FinTech entrants. To explore this possibility further, we examine solicitations by rate-ceiling and consumer risk categories, as described in the previous section. As before, the dependent variable is the number of solicitations per 10,000 consumers with credit scores. The regression model is

$$Y_{ijt} = \beta_0 + d1 \cdot SL_{it} + d2 \cdot SH_{it} + d3 \cdot NL_{it} + d4 \cdot NH_{it} + d5 \cdot LL_{it} + d6 \cdot LH_{it} + d7 \cdot HL_{it} + \sum_{rjt} \beta_j \cdot X_{rjt} + \varepsilon_{ijt}, \quad (2)$$

Variables indicating the rate ceiling category (L , low; and H , high) and the consumer risk category (S , subprime; N , near prime; L , low prime; and H , high prime) replace the high-rate indicator variable from the previous regression. The high-prime, high-rate state (HH_{it}) is the reference group.

Estimation results presented in Table 3 in panel B suggest that historical risk tolerances of finance companies and banks persist and that rate ceilings, when binding, influence the supply of personal loans. Finance companies (column III) solicited quite heavily higher-risk consumers especially in high-rate states, consistent with risk segmentation of the personal loan market by institutional class. Subprime consumers in high-rate states received 58.6 solicitations per 10,000 more than high-prime consumers in high-rate states, while subprime consumers in low-rate states received 48 per 10,000 more solicitations from finance companies. Finance companies also solicited near-prime consumers in high-rate states more than high-prime consumers in high-rate states. As a whole, these findings suggest that finance companies specialize in the high-risk segment of the market and that they especially focus their attention on high-rate states in which high-risk lending is profitable.

Mainstream bank solicitations (column VII) targeted high-prime consumers. Subprime, near-prime, and low-prime consumers received far fewer solicitations from banks than high-prime con-

sumers, regardless of rate ceiling.³⁵ High-prime consumers in low-rate states received substantially more solicitations than high-prime consumers in high-rate states. Fewer solicitations of all but high-prime consumers point to continued risk aversion by banks.

FinTech-specialist bank partnerships (column II) heavily solicited near-prime and low-prime consumers, which appear not to interest banks and finance companies very strongly. Near-prime consumers in low-rate states received 79.1 per 10,000 more solicitations from FinTech-bank partnerships than high-prime consumers in high-rate states, while low-prime consumers in low-rate states received 72.3 per 10,000 more than the reference group. FinTech-bank partnership solicitations of near-prime and low-prime consumers in high-rate states were also notable (35.2 and 38.2 per 10,000, respectively). Notable also are solicitations of subprime consumers in low-rate states (47.8 per 10,000). The latter group (subprime consumers in low-rate states) likely are not profitable for finance companies, because they are subject to local state rate ceilings. FinTech-bank partnerships can use the bank preemption of state rate ceilings to lend to this group.

Specialist banks (column VI) originating loans on their own solicited fewer subprime consumers and near-prime consumers in high-rate states than high-prime consumers in high-rate states. These banks solicited low-prime and high-prime consumers in low-rate states at a somewhat higher rate than the reference group, perhaps because their experience in FinTech partnerships made them comfortable using their preemption from state rate ceilings to lend in low-rate states. In avoiding higher-risk consumers, specialist banks operating on their own acted much like their mainstream bank brethren.

FinTech firms operating on their own (column IV) targeted riskier consumers. Subprime and near-prime consumers in low- and high-rate states were solicited at notably higher rates (6.97, 13.7, and 7.95 per 10,000 consumers, respectively) than the reference group. When operating on their own, FinTech firms' risk acceptance more closely resembled that of finance companies than banks.

Payday lenders (column V) focused on the riskiest customers, soliciting subprime consumers more than any other credit risk category. Subprime consumers located in low-rate states received 10.5 solicitations per 10,000, while subprime consumers located in high-rate states received the highest number of solicitations—18.9 per 10,000. Similar to finance companies, when making personal loans, payday lenders focus on high-rate states in which high-risk lending is profitable.

In Table B1 in Appendix B, we show that our results remain robust even after the elimination of outlier states—Arkansas and Iowa.

4.2.2. Mail Volume after the *Madden v. Midland* Decision

To examine the implications of the *Madden v. Midland* ruling on the supply of personal loans, we use a similar design employed by other studies (see [Danisewicz and Elard, 2018](#)), but we expand the treatment group to include Vermont. As a result, our treatment group consists of all three

³⁵In some states, rate ceilings for banks may differ from rate ceilings in small-loan laws. Banks may charge rates allowed in their home state, regardless of where the borrower is located.

states in which the U.S. Second Court of Appeals has jurisdiction — New York, Connecticut, and Vermont.³⁶ Other states make up our comparison group. Our regression model is

$$Y_{ijt} = \beta_0 + d_1 \cdot NYCTVT_i + d_2 \cdot PostMadden_t + d_3 \cdot NYCTVT \cdot PostMadden_{it} + \sum_r \beta_j \cdot X_{rjt} + \varepsilon_{ijt}, \quad (3)$$

where Y_{ijt} represent solicitations by lender category i in state j and month and year t in aggregate and by credit risk group. $NYCTVT_i$ represents an indicator variable that equals 1 if the state is New York, Connecticut, or Vermont, and 0 otherwise. It carries the coefficient d_1 , which shows the mean difference in the number of solicitations in treatment states (New York, Connecticut, and Vermont) relative to control states (all others). $PostMadden_t$ represents an indicator variable that equals 1 for the period after the *Madden* ruling and 0 otherwise. The coefficient d_2 captures the change in the number of solicitations after the ruling, relative to the previous period. $NYCTVT \cdot PostMadden_{it}$ is the interaction term underpinning the coefficient of interest, d_3 , which represents the change in the number of solicitations in treatment states relative to the change in the number of solicitations in control states. This coefficient is expected to be negative and statistically significant for bank-FinTech partnerships. X_{rjt} are r variables accounting for economic, credit risk, and life-cycle characteristics that lenders might target for solicitations. ε_{ijt} is the error term. Standard errors are clustered at the state level.

After controlling for consumer characteristics, consumers in New York, Connecticut, and Vermont received more solicitations from FinTech-bank partnerships (Table 4, panel B, column II) and banks (panels F and G) than consumers in the comparison group states. Finance companies (panel C) made fewer solicitations in treatment states. New York, Connecticut, and Vermont are subject to relatively low rate ceilings. These results are consistent with low rate ceilings restricting nonbank lending. Low rate ceilings make risky loans and small-sized loans unprofitable, so they are not offered in the market. Banks generally are not so constrained. Banks and FinTech-bank partnerships may take advantage of regulations that allow banks to charge rates that are legal in their home state regardless of the state in which a consumer resides.

Overall, FinTech-bank partnerships (panel B, column II) and specialist banks (panel F, column II) made more solicitations, while nearly all other lender types made fewer solicitations, in the period after the *Madden* decision than in the period before the decision. After controlling for consumer characteristics, the net effect of the *Madden* decision in treatment states was 15.9 fewer solicitations per 10,000 individuals (41.2 per 10,000 post-*Madden* plus negative 56.1 per 10,000 post-*Madden* in New York, Connecticut, and Vermont). Finance companies made notably more

³⁶Although we are aware of the heterogeneity issue within our group, as Vermont differs in its treatment of usurious loans, given that we examine the *supply* effects of the ruling, we include all three states in our treatment group. Our results are consistent when excluding Vermont from our estimation. (See Honigsberg, Jackson Jr., and Squire, 2017; and Danisewicz and Elard, 2018.)

(47.4 per 10,000) solicitations in treatment states after the *Madden* decision than they made in the period before the decision.³⁷

Danisevicz and Elard (2018) found a decline in FinTech lending following the *Madden* decision, especially among low-income households. Low income is not the same as high risk, but low income does tend to make consumers vulnerable to financial difficulties that adversely affect their credit scores. Post-*Madden*, we find reductions in FinTech-bank partnership offers in all risk groups relative to consumers in comparison states (Table 4, panel B), with the most significant reductions in solicitations occurring for near-prime (76.2 per 10,000), low-prime (50.7 per 10,000), and high-prime (37.4 per 10,000) consumers in treatment states. With the exception of finance companies, solicitations from the other lender types were little changed in treatment states relative to consumers in comparison states in the post-*Madden* period. The most notable increases shown by finance companies are for near-, low-, and high-prime consumers (60.8, 48.4, and 56.5, respectively).

The *Madden* decision appears to have affected nonbank lending more broadly than FinTech-bank partnership lending. *Madden* did not dispute that the credit card company charged a lawful rate. Rather, the decision invalidated the long-standing valid-when-made doctrine, which holds that on a contract that is legal at inception, a transferee has the right to enforce the contract on the same terms as those that had been available to the transferor when the contract was made. This doctrine is a core and generally accepted principle of contracts and is central to the stability of credit markets. In a legal analysis of the principles involved in the *Madden* decision, Horn and Hall (2017) pointed to the uncertainty that arises from the decision and that may have broad implications for lenders' willingness to lend:

"By effectively invalidating the collection of post-default interest on a lawful loan agreement by reason of its transfer, *Madden* has created substantial uncertainty in the reliability of the valid-when-made doctrine in the Second Circuit. The outcome of the *Madden* decision involves a somewhat specific interaction of usury and federal preemption principles ... *Madden*, however, has cast at least a temporary pall on loan sales and trading activity, and has forced bank and nonbank buyers and sellers of loans to review critically their loan sales and trading policies and procedures, and in many cases revise their business practices. The ultimate issue that *Madden* raises, however, is how far-reaching are its holdings and their ramifications, and whether the decision will materially affect the interpretation and application of longstanding principles of usury and the validity of loan agreements. [T]he legal and commercial landscape for

³⁷The regression results for finance companies and payday lenders need to be interpreted with caution, as the post-*Madden* ruling period overlaps with the proposal and implementation of the Consumer Financial Protection Bureau's transient Payday Loans, Vehicle Title Loans, and Certain High-Cost Installment Loans rule which limited the supply of loans issued by these types of institutions, among others. The proposed rule was issued on June 2, 2016, while the final rule was issued on October 5, 2017, and rescinded on February 6, 2019.

loan origination and sales activities would become, at the very least, materially less predictable (pp. 1–2)."

Our findings suggest that the *Madden* decision indeed had notable implications. FinTech companies partnering with banks considerably reduced solicitations for personal loans in Second Circuit states following the *Madden* decision, especially for higher-risk consumers. At the same time, finance companies increased their solicitations in these states.

5. Conclusion

Our paper looks at FinTech-bank partnerships' solicitations for personal loans for debt consolidation and other purposes, an indicator of supply for such credit. We examine personal loan solicitations by FinTech firms, finance companies, banks, and payday lenders. We investigate how institutional arrangements and interest rate regulation influence the supply of personal loans for different risk classes of consumers. Previous research focuses on FinTech firms' and banks' provision of personal loans used for debt consolidation and other purposes. They have not considered personal loans from consumer finance companies, which have traditionally been the major source of personal loans for higher-risk consumers within the broader market.

We also examine the effect of a court decision that invalidates the FinTech-bank partnership business model specifically in several states and may have broad implications for the functioning of consumer credit markets in general.

The solicitation data provide evidence of risk segmentation by institutional class of lender. Our findings show that finance companies, FinTech companies without a bank partner, and payday lenders concentrate on lending to high-risk subprime consumers. Banks focus on high-prime consumers. We find that FinTech-bank partnerships focused on solicitations for personal loans to marginal consumers, near prime and low prime. They show some interest in subprime consumers in low rate states.

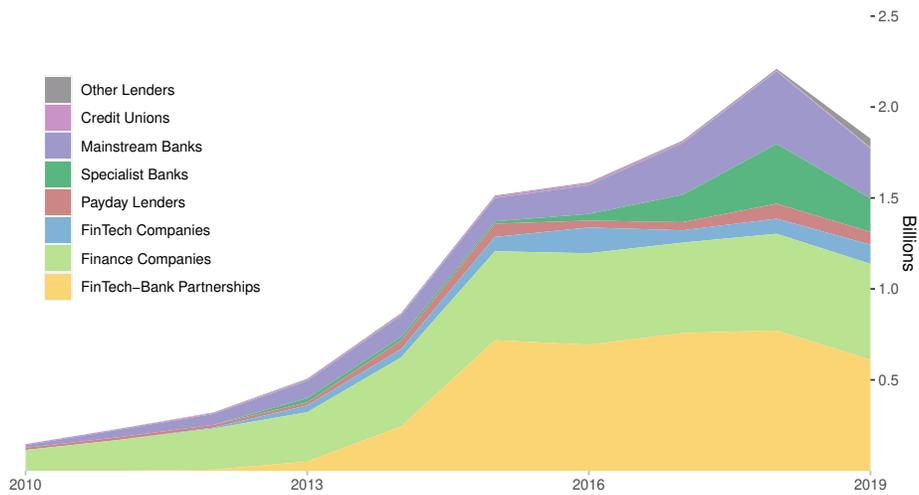
Our findings suggest that state interest rate ceilings influenced the supply of personal loans by institutional class. FinTech-bank partnerships heavily targeted near- and low-prime consumers in states with restrictive interest rate ceilings. The partnerships did not heavily solicit high-prime consumers regardless of rate-ceiling regulation. They also had little interest in subprime consumers in high-rate states. However, FinTech-bank partnerships moderately solicited subprime consumers in states with low rate ceilings, likely because they faced relatively little competition in these states. Finance companies without bank partners could not operate profitably in low-rate states. But finance companies heavily solicited subprime consumers in high-rate states, and payday lenders and FinTech companies without a bank partner followed suit. Banks showed little interest in consumers in any part of the risk spectrum other than the high-prime part.

The Second Circuit's *Madden v. Midland* decision appears to have had a sizable negative effect on FinTech-bank partnership lending. The decision also had sizable effects on solicitations of

other lenders that specialize in personal loans to higher-risk consumers—finance companies, that stepped up their solicitations in treatment states after the decision.

Our *Madden* exercise using a supply indicator complements other investigations examining other outcome variables ([Danisewicz and Elard, 2018](#); [Honigsberg, Jackson Jr., and Squire, 2017](#); [Horn and Hall, 2017](#)).

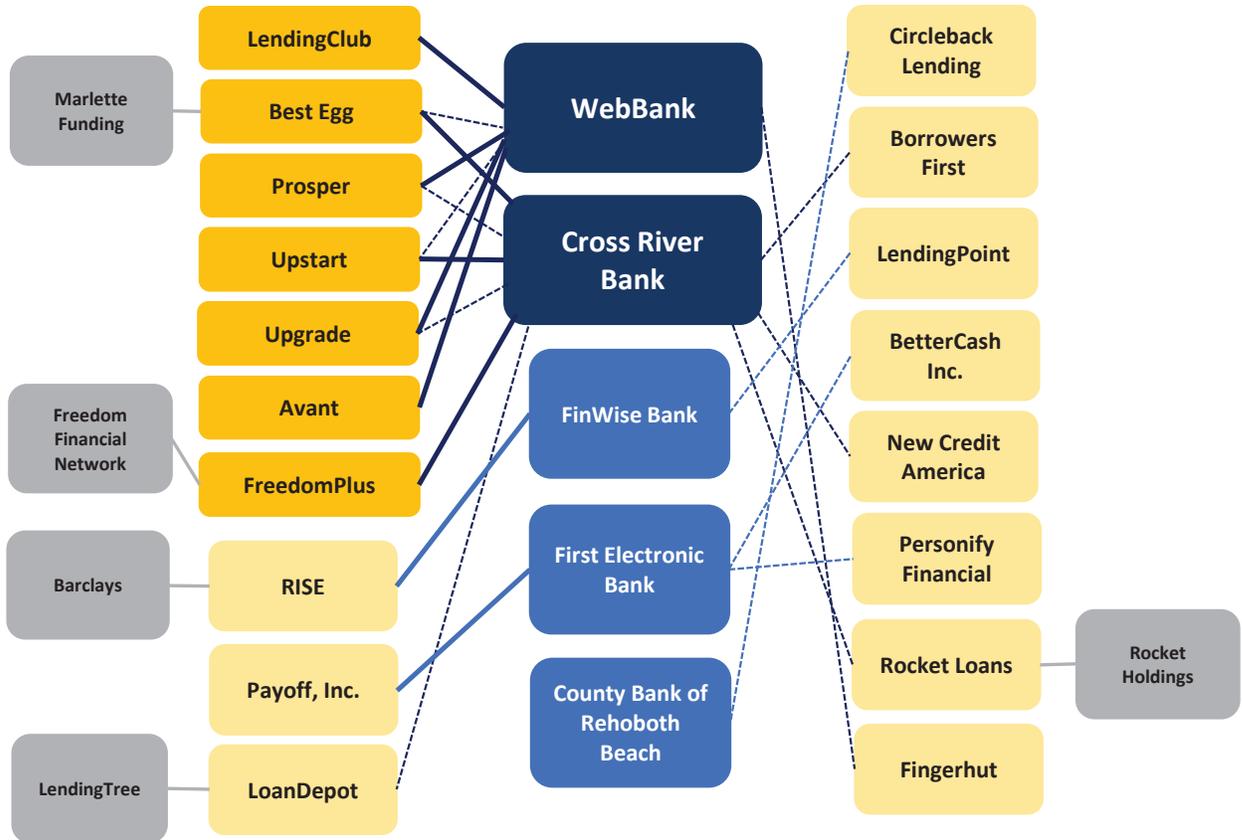
Figure 1. Unsecured Personal Loan Offer Mail Volume



Note: This figure shows the annual unsecured personal loan offer mail volume for each lender category. FinTech-bank partnerships and finance companies dominate this space.

Source: Mintel Comperemedia.

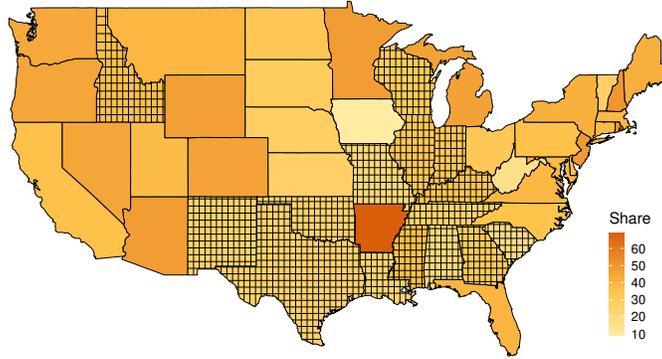
Figure 2. FinTech-Bank Relationship Diagram



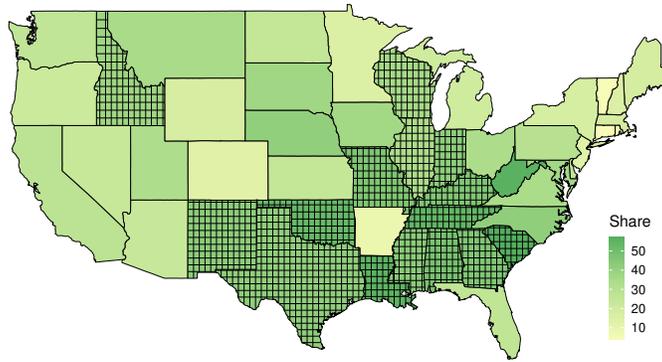
Note: This figure shows the footprint of FinTech-bank relationships observed in our data. In blue, we show a list of the specialist banks engaged in partnerships with FinTech companies. In orange, we show the FinTech companies partnering with the specialist banks we observe. In gray, we show the parents of the FinTech companies engaged in the partnerships. We decrease the pigment from strong to weak to indicate market shares, and we use thick lines to designate stronger partnership relationships (typically defined as more than 100 partnered campaigns during the period of analysis) and thin dashed lines for weaker relationships. The relationships and the participants highlighted are non-exhaustive.

Source: Mintel Comperemedia.

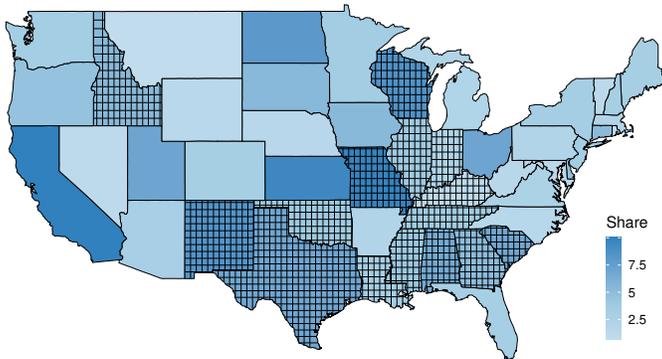
Figure 3. Share of Mail Volume in Total Mail Volume



(a) FinTech-Bank Partnerships



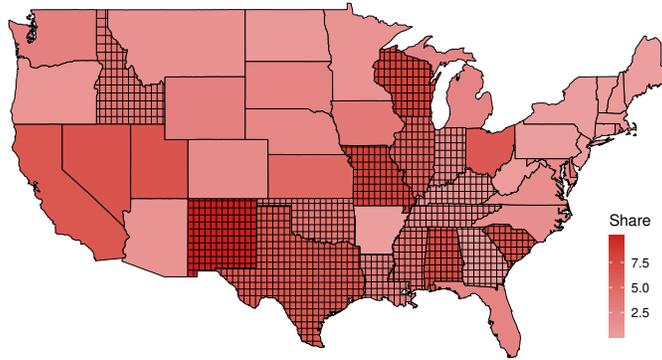
(b) Finance Companies



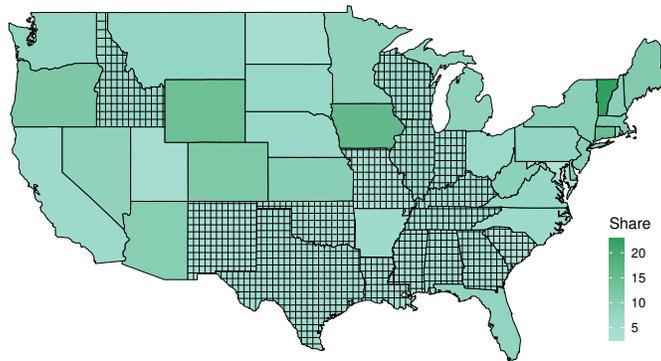
(c) FinTech Companies

Continued on next page

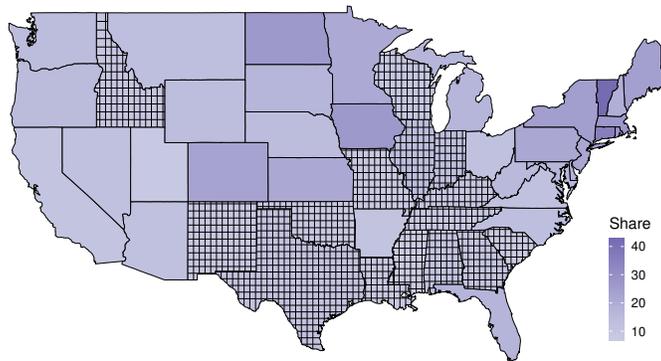
Figure 3. Share of Mail Volume in Total Mail Volume (continued from previous page)



(d) Payday Lenders



(e) Specialist Banks

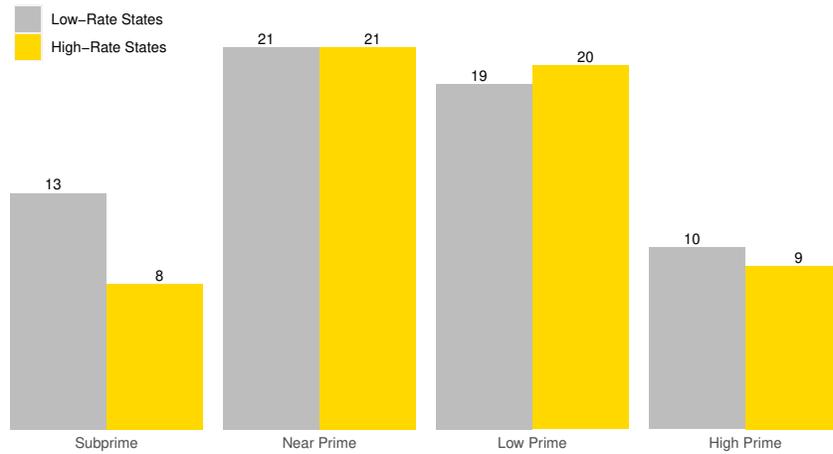


(f) Mainstream Banks

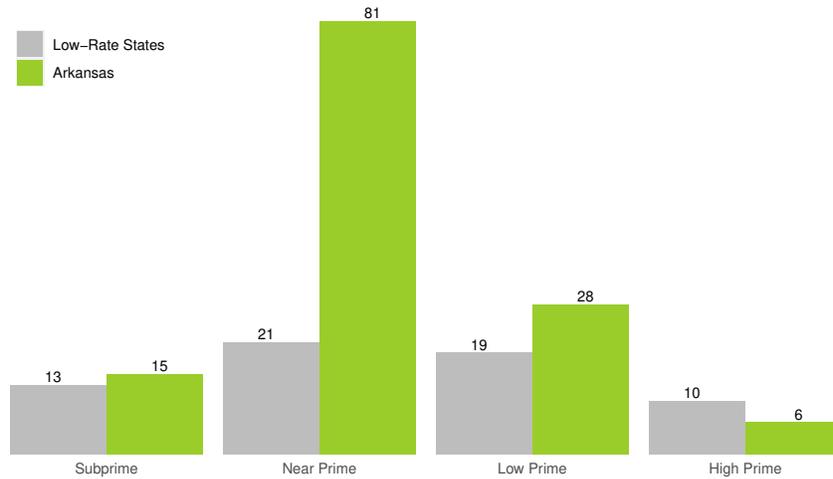
Note: This figure contrasts the share of mail volume in total mail volume for the six lender categories analyzed. Panel (a) shows the share for FinTech-bank partnerships, panel (b) for finance companies, panel (c) for FinTech companies, panel (d) for payday lenders, panel (e) for specialist banks, and panel (f) for mainstream banks.

Source: Mintel Comperemedia.

Figure 4. FinTech-Bank Partnership Mail Offers per Individual with Credit Score



(a) Low-Rate States (shown in gray) vs. High-Rate States (shown in yellow)

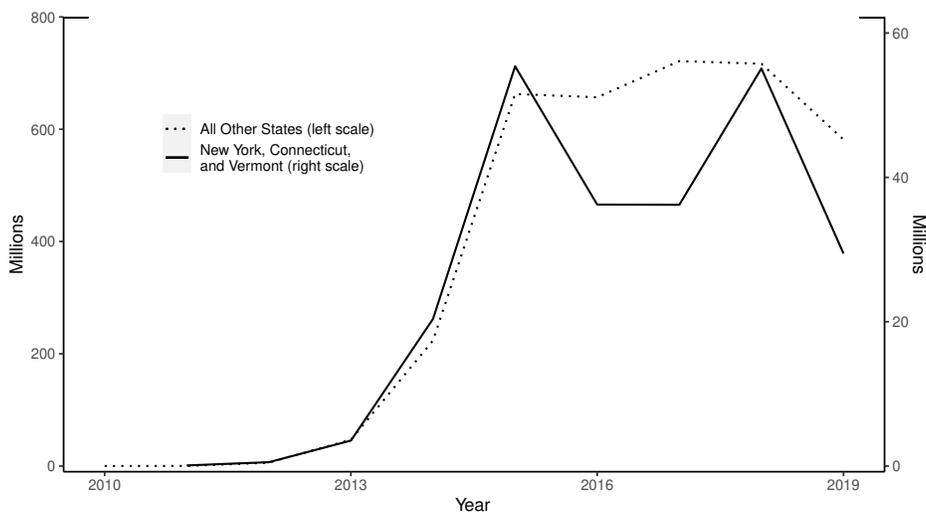


(b) Arkansas (shown in green) vs. All Other Low-Rate States (shown in gray)

Note: This figure contrasts the FinTech-bank mail offers per individual with credit score across state interest rate ceiling regimes and within low interest rate states by credit risk group. Panel (a) contrasts the mail offers received in low-rate states (shown in gray) with those received in high-rate states (shown in yellow). Panel (b) contrasts the mail offers received in Arkansas (shown in green) with those received in the remainder of low-rate states (shown in gray). Data are summed over the observed period (2010–19). The population with credit scores was obtained from FRBNY CCP/Equifax (as of 2019:Q4).

Source: Mintel Comperemedia; Federal Reserve Bank of New York Consumer Credit Panel (FRBNY CCP)/Equifax.

Figure 5. Mail Volume after the *Madden v. Midland* Ruling



Note: The solid line indicates the aggregate FinTech-bank partnership mail volume for our treatment group, the states under the Second Circuit (New York, Connecticut, and Vermont), while the dotted line shows the aggregate FinTech-bank partnership mail volume for all other states. After May 2015, when the *Madden v. Midland* ruling occurred, we note that the solicitation mail volume in the states primarily affected dropped considerably. The uncertainty caused by the ruling had spillover effects in the other states as well, but to a lesser extent and for a shorter period.

Source: Mintel Comperemedia.

Table 1: Share of FinTech Loans Exceeding The Interest Rate Ceiling In Arkansas

State	Ceiling	Share of Loans Exceeding It	
		Prosper	LendingClub
Arkansas	17	36	19

Source: Authors calculations based on Prosper and LendingClub data for the period between 2014 and 2017.

Table 2: Summary Statistics and Variable Descriptions

Description	Number of Observations	Mean	Standard Deviation	Source
<i>Dependent variables</i>				
Total unsecured solicitation mail volume	105,420	202	275	Mintel
FinTech-bank partnership unsecured solicitation mail volume	105,420	72	198	Mintel
Finance company unsecured solicitation mail volume	105,420	68.7	178	Mintel
FinTech lender (nonpartnered) unsecured solicitation mail volume	105,420	9.21	68.2	Mintel
Payday lender unsecured solicitation mail volume	105,420	7.17	62.7	Mintel
Specialist bank (nonpartnered) unsecured solicitation mail volume	105,420	14.9	96.3	Mintel
Mainstream bank unsecured solicitation mail volume	105,420	30.1	130	Mintel
<i>Explanatory variables</i>				
VantageScore credit score of the receiver of the offer	105,420	720	133	Mintel
State-level GDP (logarithm)	105,420	13.2	0.947	BEA
<i>Indicator variables</i>				
State interest rate level (Rate)	105,420	0.372	0.483	Mintel
Household head's age is less than 25 years	105,420	0.0226	0.149	Mintel
Household head's age is 25 to 39 years	105,420	0.272	0.445	Mintel
Household head's age is 40 to 54 years (omitted)	105,420	0.364	0.481	Mintel
Household head's age is 55 years or older	105,420	0.34	0.474	Mintel
Household head identifies as Asian	105,420	0.0114	0.106	Mintel
Household head identifies as Black	105,420	0.0501	0.218	Mintel
Household head identifies as white	105,420	0.387	0.487	Mintel
Household head identifies as another race (omitted)	105,420	0.0192	0.137	Mintel
Household head's race is not specified	105,420	0.532	0.499	Mintel
Household income less than \$24,999	105,420	0.144	0.351	Mintel
Household income \$25,000-\$59,999	105,420	0.374	0.484	Mintel
Household income \$60,000-\$99,999	105,420	0.306	0.461	Mintel
Household income over \$100,000 (omitted)	105,420	0.157	0.364	Mintel
Presence of children is unknown (omitted)	105,420	0.504	0.5	Mintel
Presence of children in the household	105,420	0.123	0.329	Mintel
No children in the household	105,420	0.373	0.484	Mintel
Household head's education is less than high school	105,420	0.185	0.388	Mintel
Household head is educated at the undergraduate level	105,420	0.214	0.41	Mintel
Household head is educated at the graduate level	105,420	0.0401	0.196	Mintel
Household head's education is unknown (omitted)	105,420	0.561	0.496	Mintel
Single-family home	105,420	0.377	0.485	Mintel
Multi-family home	105,420	0.0841	0.277	Mintel
Trailer home	105,420	0.031	0.173	Mintel
Residence type is unknown (omitted)	105,420	0.508	0.5	Mintel
Home is rented	105,420	0.267	0.443	Mintel
Home is owned	105,420	0.705	0.456	Mintel
The home status type is unknown (omitted)	105,420	0.0276	0.164	Mintel
Subprime consumers in low-rate states (SL)	105,420	0.142	0.349	Mintel
Subprime consumers in high-rate states (SH)	105,420	0.11	0.313	Mintel
Near-prime consumers in low-rate states (NL)	105,420	0.156	0.363	Mintel
Near-prime consumers in high-rate states (NH)	105,420	0.0938	0.291	Mintel
Low-prime consumers in low-rate states (LL)	105,420	0.163	0.369	Mintel
Low-prime consumers in high-rate states (LH)	105,420	0.0873	0.282	Mintel
High-prime consumers in low-rate states (HL)	105,420	0.167	0.373	Mintel
High-prime consumers in high-rate states (HH) (omitted)	105,420	0.0811	0.273	Mintel
Consumers in New York, Connecticut, or Vermont (NYCTVT)	105,420	0.0559	0.23	Mintel
Period after May 2015 (PostMadden)	105,420	0.786	0.41	Mintel

Source: Mintel Comperemedia, Bureau of Economic Analysis for the GDP, and Federal Reserve Bank of New York Consumer Credit Panel/Equifax for the credit score distribution.

Table 3: Regression Results for Mail Volume by Lender Type

	All Lenders	FinTech-Bank Partnerships	Finance Companies	FinTech Companies	Payday Lenders	Specialist Banks	Mainstream Banks
VARIABLES	I	II	III	IV	V	VI	VII
A.							
Rate	-67.1 (45.677)	-44.4** (21.139)	9.46 (10.657)	1.58 (2.237)	2.51 (2.011)	-12.1** (5.712)	-24** (10.330)
R-squared	0.527	0.173	0.193	0.024	0.026	0.048	0.097
B.							
SL	73.9 (47.039)	47.8** (23.603)	48*** (15.115)	6.97** (3.191)	10.5*** (3.166)	1.86 (6.019)	-41.2*** (9.220)
SH	1.77 (7.917)	-19.8** (8.704)	58.6*** (12.439)	13.7*** (3.282)	18.9*** (3.938)	-12*** (3.225)	-57.5*** (11.647)
NL	61.1 (42.729)	79.1*** (22.596)	6.58 (12.579)	3.51 (2.544)	.746 (1.962)	6.22 (4.596)	-35*** (7.777)
NH	3.91 (6.284)	35.2*** (8.279)	16.5*** (4.248)	7.95*** (2.357)	3.15* (1.578)	-4.09* (2.121)	-54.9*** (10.611)
LL	72.4 (45.338)	72.3*** (22.742)	-4.38 (13.292)	4.28* (2.413)	-0.283 (1.869)	13*** (4.609)	-12.8* (7.021)
LH	7.45 (4.531)	38.2*** (8.316)	-1.06 (3.601)	1.98** (0.784)	-1.47* (0.819)	2.53** (1.181)	-32.7*** (7.485)
HL	74 (45.417)	27.9 (22.885)	-10.9 (13.553)	3.99* (2.298)	.932 (1.992)	12.7** (5.907)	39.4*** (14.313)
R-squared	0.527	0.185	0.199	0.026	0.032	0.049	0.119
Controls	YES	YES	YES	YES	YES	YES	YES
Time FE	YES	YES	YES	YES	YES	YES	YES
Obs.	105,420	105,420	105,420	105,420	105,420	105,420	105,420

Note: *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. This table reports the coefficients and standard errors clustered at the state level obtained using equations 1 (panel A) and 2 (panel B). The dependent variables represent the mail volume per 10,000 individuals with credit scores, in aggregate and for each of the six lender categories analyzed: FinTech-bank partnerships, finance companies, FinTech lenders, payday lenders, specialist banks, and mainstream banks. Rate is the key explanatory variable in panel A and equals 1 for high-rate states and 0 otherwise. The key explanatory variables for panel B are indicator variables for the credit score category (subprime, VantageScore credit score lower than or equal to 660; near prime, VantageScore credit score higher than 660 and lower than or equal to 719; low prime, VantageScore credit score higher than 719 and lower than or equal to 792; and high prime, VantageScore credit score higher than 792) and the level of the state consumer finance rate ceiling (with high and low). Control variables include financial and demographic characteristics such as age, income level, the presence of children in the household, whether the home is owned or rented, ethnicity, residence type, household head's level of education, and the state-level GDP. The VantageScore credit score is included only among controls used for regression results presented in panel A.

Source: Mintel Comperemedia, Bureau of Economic Analysis, and Federal Reserve Bank of New York Consumer Credit Panel/Equifax.

Table 4: Regression Results for Mail Volume by Credit Risk Group in Light of the *Madden* Ruling

VARIABLES	All Consumers		Subprime	Near Prime	Low Prime	High Prime
	I	II	III	IV	V	VI
<i>A. All Lenders</i>						
NYCTVT	-69.8 (99.095)	87.5 (52.451)	116 (76.203)	64.1 (41.607)	78.1 (50.166)	95.4 (61.125)
PostMadden	-29.4** (12.339)	-11.4 (7.168)	-9.61 (11.964)	-13* (6.871)	-16.6 (10.100)	-7.91 (8.952)
NYCTVT·PostMadden	15.9 (24.176)	-14 (27.264)	-51.3 (68.049)	2.37 (13.735)	-1.17 (21.689)	-23.5 (40.041)
<i>B. FinTech-Bank Partnerships</i>						
NYCTVT	17.3 (35.683)	72.8*** (22.496)	106* (63.066)	98.9*** (31.348)	68.1** (26.362)	45.1** (17.405)
PostMadden	38.4*** (7.516)	41.2*** (8.310)	37.2*** (10.833)	47.2*** (8.736)	40.9*** (11.412)	30.5*** (6.040)
NYCTVT·PostMadden	-44.4*** (11.285)	-56.1*** (17.235)	-66.8 (51.842)	-76.2*** (27.368)	-50.7** (20.673)	-37.4*** (12.984)
<i>C. Finance Companies</i>						
NYCTVT	-101*** (22.650)	-43.1** (19.196)	-4.72 (16.884)	-51.5*** (14.373)	-48.5*** (15.967)	-56.8*** (20.233)
PostMadden	-69.2*** (12.943)	-60.8*** (9.792)	-43.4*** (8.505)	-75.4*** (12.001)	-57.2*** (14.721)	-53.6*** (10.658)
NYCTVT·PostMadden	55.7*** (14.754)	47.4** (13.685)	16.6 (27.166)	60.8*** (17.875)	48.4** (19.638)	56.5*** (12.438)
<i>D. FinTech Companies</i>						
NYCTVT	-6.52*** (1.690)	.375 (3.344)	-6.2 (5.409)	.149 (2.666)	2.44 (3.184)	2.5 (3.151)
PostMadden	1.94* (1.142)	2.52* (1.348)	.695 (3.323)	.24 (1.379)	1.78 (1.509)	6.44*** (1.459)
NYCTVT·PostMadden	3.02 (3.582)	1.83 (2.818)	6.95 (5.189)	.105 (1.986)	3.23 (4.973)	-.236 (3.895)
<i>E. Payday Lenders</i>						
NYCTVT	-10.7*** (2.040)	-4.12 (2.511)	-10.2 (8.089)	-2.42 (1.787)	-3.1*** (1.137)	-4.21*** (1.435)
PostMadden	-4.62*** (1.229)	-4.96*** (1.183)	-10.8*** (3.791)	-1.37 (1.413)	-4.35*** (1.491)	-3.86*** (0.849)
NYCTVT·PostMadden	4.17*** (1.273)	3.38* (1.718)	8.44 (6.241)	1.09 (1.470)	2.97 (1.942)	3.79*** (1.121)
<i>F. Specialist Banks</i>						
NYCTVT	2.84 (5.674)	15.3** (6.448)	28.3 (23.700)	11.8** (5.024)	14.6* (7.960)	19.4** (8.811)
PostMadden	12.7*** (2.416)	12.9*** (2.652)	5.26* (3.019)	10*** (2.406)	15*** (3.363)	20.7*** (4.683)
NYCTVT·PostMadden	5.65 (12.587)	3.03 (11.505)	-17.5 (21.457)	-.387 (8.685)	15.7 (26.524)	-7.26 (8.830)
<i>G. Mainstream Banks</i>						
NYCTVT	28.3 (46.268)	46.3 (36.856)	3.01 (2.375)	7.14 (5.065)	46 (33.087)	89.4 (54.945)
PostMadden	-8.52*** (3.120)	-2.24 (2.210)	1.32* (0.714)	6.38*** (1.490)	2.93 (3.376)	-8.05 (5.632)
NYCTVT·PostMadden	-8.15 (17.556)	-13.5 (18.210)	.942 (3.084)	16.9 (23.437)	-22.1 (24.922)	-38.9 (39.066)
Controls	NO	YES	YES	YES	YES	YES
Observations	105,420	105,420	26,531	26,359	26,337	26,193

Note: *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. Standard errors clustered at the state level.
Source: Mintel Comperemedia, BEA, and Federal Reserve Bank of New York Consumer Credit Panel/Equifax.

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Appendix

A. Additional Figures

Figures **A1** through **A3** show a few examples of mail offers sent by FinTech lenders in partnership with specialist banks. The highlighted portion indicates the bank partner issuing the loan.

Figure A1. Prosper/WebBank Personal Loan Offer for Credit Card Loan Consolidation

The advertisement is divided into two main sections. The top section features a large blue "\$0" with the text "IN CREDIT CARD BALANCES*" below it. To the right, it says "Get to \$0 in balances fast" and provides details about paying off high-rate credit cards. The bottom section has a teal background on the right with the text "LOW FIXED RATE" and "APRs range from 6.95% - 36%". The Prosper logo is in the center of the teal bar. The bottom left of the teal section says "Stop paying high interest" and "Make a fresh financial start instead".

\$0
IN CREDIT CARD
BALANCES*

Get to \$0 in balances fast

With a loan through Prosper, you can pay off high-rate credit cards and get on top of your finances. Apply in minutes and you could get the money you need in as few as 3 days.

Visit **SaveWithProsper.com**

*See letter for more details

PROSPER

Stop paying high interest
Make a fresh financial start instead

You could save thousands in interest! Check your rate in minutes – it won't affect your credit score.

▶ Visit **SaveWithProsper.com**

**LOW
FIXED
RATE**

APRs range from
6.95% – 36%

1810-PCC-IN

If you meet the selection criteria, you may post a listing in an amount between \$2,000 and \$40,000 at the interest rate then in effect for your Prosper Rating. Eligibility for loans up to \$40,000 depends on the information provided by the applicant in the application form. Eligibility for a loan is not guaranteed and funding of any amount greater than \$2,000 (\$3,001 for GA residents; \$6,500 for MA residents) requires that a sufficient number of investors commit funds to your loan. If (i) your listing expires unfunded; and (ii) you continue to satisfy the criteria used to select you for the offer, funding is guaranteed for a \$2,000 (\$3,001 for GA residents; \$6,500 for MA residents) 3-year loan listing at the interest rate then in effect for your Prosper Rating. Usage of your Personal Confirmation Number on or before the expiration date is required in order to receive this special offer. Refer to Borrower Registration Agreement for all terms and conditions. [All personal loans made by WebBank, Member FDIC](#). Prosper Marketplace, Inc., Maine loan broker license #CS014193.

Source: Mintel Comperemedia campaign database.

Figure A2. LendingClub/WebBank Personal Loan Offer

LendingClub 595 Market St, #200
San Francisco, CA 94105

Prequalified Code:

Valid Through: 1/27/2020

Prequalified Offer for: UP TO **\$5,000.00**

Amount up to FIVE THOUSAND and 00/100

Visit MyInstantOffer.com to choose your loan amount.

TO THE ORDER OF:

Scott Sanborn
Fast processing at MyInstantOffer.com

Non-Negotiable. NOT A REAL CHECK. Offer expires: 1/27/2020

Get started in just 3 easy steps:

- 1. CHECK YOUR RATE**
See how low your APR could be. It's free.
- 2. CHOOSE YOUR LOAN OFFER**
Pick your monthly payment and decide how long you need to pay back your loan.
- 3. GET YOUR MONEY**
Your money will be sent as soon as your loan is approved and processed.

You could have your money in just a few short days!

Visit MyInstantOffer.com to get started.

Credit Certification and Authorization

This offer is for an unsecured Personal Loan through the LendingClub platform made by WebBank, Member FDIC. The personal loan is subject to provisions in the Important Prequalified Terms and Conditions section below. You certify that all information provided by you at the time of acceptance is true, correct, and complete and that you are (a) at least 18 years old and legally able to enter into a contract for the extension of credit and (b) a U.S. citizen, permanent resident, or non-permanent resident in the U.S. on a valid long-term visa. You authorize us to make inquiries and obtain information about you as we deem appropriate for the purpose of evaluating you for this extension of credit including obtaining credit reports, verifying your income, and contacting your employer. You also authorize us to provide identification information about you and our credit experience information with you to others in accordance with applicable law. All approved loans are fully funded by WebBank, Member FDIC. Duplicate offers received as a result of multiple mailings to the same person are void, as are multiple acceptances of the same offer. This offer is subject to the expiration date listed on the front page.

Source: Mintel Comperemedia campaign database.

Figure A3. Best Egg/Cross River Bank Personal Loan Offer

Fixed APRs as low as
4.99%*

You're Pre-Approved* up to
\$50,000

Fixed monthly payment
One

Dear [REDACTED]

Consolidate your credit card debt and make one fixed monthly payment, and you could be debt-free in as little as 36 months. You are **Pre-Approved** for a Best Egg® personal loan of **up to \$50,000 with a FIXED APR as low as 4.99%.***

Monthly terms that SAVE YOU MONEY.

- Enjoy **fixed APRs** for the life of the loan—ranging from 4.99% to 29.99%.*
- Pay over time with clear terms and one fixed monthly payment. Plus, there are **no prepayment penalties**.

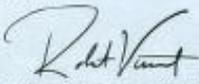
Pay off high-interest debt FAST.

- Add up all of your credit card balances and other high-rate debt, and consider requesting additional funds to make home repairs, take a vacation, or pay for other large expenses.
- Request a Best Egg loan **for as little as \$2,000 up to \$50,000**.

No waiting. NO COMPARISON.

- Unlike many traditional loans, upon approval, funds could be directly deposited into your bank account **in as little as one day**.
- Check your rate—**it won't impact your credit score**.

Respond online or by phone and **enter your personal offer code** to take advantage of this exclusive offer.

Best,

Robert Vincent, Chief Marketing Officer

***Important Offer Details:**

Best Egg loans are unsecured personal loans made by Cross River Bank, a New Jersey State Chartered Commercial Bank, Member FDIC, Equal Housing Lender. "Best Egg" is a trademark of Marlette Funding, LLC. All uses of "Best Egg" refer to "the Best Egg personal loan" and/or "Best Egg on behalf of Cross River Bank, as originator of the Best Egg personal loan," as applicable.

Source: Mintel Comperemedia campaign database.

B. Additional Table

Table B1 presents robustness checks consisting of the main results of the estimation using the first two equations contrasted with those obtained when excluding from the estimation the outlier states, Arkansas and Iowa.

Table B1: Regression Results for Mail Volume by Lender Type—Robustness Check

VARIABLES	All Lenders		FinTech-Bank Partnerships		Finance Companies		FinTech Companies		Payday Lenders		Specialist Banks		Mainstream Banks	
	all states	excl. AR&IA	all states	excl. AR&IA	all states	excl. AR&IA	all states	excl. AR&IA	all states	excl. AR&IA	all states	excl. AR&IA	all states	excl. AR&IA
A.														
Rate	-67.1 (45.677)	-68 (47.155)	-44.4** (21.139)	-42.1** (20.630)	9.46 (10.657)	7.2 (11.064)	1.58 (2.237)	1.37 (2.301)	2.51 (2.011)	2.19 (2.042)	-12.1** (5.712)	-12.3** (5.910)	-24** (10.330)	-24.4** (10.727)
R-squared	0.527	0.521	0.173	0.166	0.193	0.198	0.024	0.024	0.026	0.026	0.048	0.047	0.097	0.096
B.														
SL	73.9 (47.039)	76 (48.310)	47.8** (23.603)	49** (23.592)	48*** (15.115)	48.3*** (15.601)	6.97** (3.191)	7.14** (3.281)	10.5*** (3.166)	10.7*** (3.249)	1.86 (6.019)	1.76 (6.188)	-41.2*** (9.220)	-40.9*** (9.340)
SH	1.77 (7.917)	2.88 (7.888)	-19.8** (8.704)	-17.2** (8.177)	58.6*** (12.439)	57.7*** (12.285)	13.7*** (3.282)	13.6*** (3.268)	18.9*** (3.938)	18.8*** (3.920)	-12*** (3.225)	-12.2*** (3.253)	-57.5*** (11.647)	-57.9*** (11.702)
NL	61.1 (42.729)	60.8 (44.367)	79.1*** (22.596)	73.7*** (21.554)	6.58 (12.579)	9.58 (12.906)	3.51 (2.544)	3.79 (2.612)	.746 (1.962)	1.2 (2.016)	6.22 (4.596)	6.22 (4.735)	-35*** (7.777)	-33.7*** (7.888)
NH	3.91 (6.284)	4.62 (6.299)	35.2*** (8.279)	37.1*** (8.174)	16.5*** (4.248)	15.9*** (4.144)	7.95*** (2.357)	7.89*** (2.347)	3.15* (1.578)	3.12* (1.567)	-4.09* (2.121)	-4.23* (2.143)	-54.9*** (10.611)	-55.1*** (10.665)
LL	72.4 (45.338)	74.8 (46.713)	72.3*** (22.742)	72.7*** (22.792)	-4.38 (13.292)	-2.6 (13.861)	4.28* (2.413)	4.39* (2.507)	-.0283 (1.869)	.253 (1.951)	13*** (4.609)	13*** (4.793)	-12.8* (7.021)	-12.9* (7.275)
LH	7.45 (4.531)	7.68* (4.562)	38.2*** (8.316)	39*** (8.373)	-1.06 (3.601)	-1.37 (3.654)	1.98** (0.784)	1.97** (0.786)	-1.47* (0.819)	-1.47* (0.825)	2.53** (1.181)	2.47** (1.185)	-32.7*** (7.485)	-32.9*** (7.523)
HL	74 (45.417)	75.4 (46.463)	27.9 (22.885)	28.4 (22.325)	-10.9 (13.553)	-9.24 (14.127)	3.99* (2.298)	4.06* (2.378)	.932 (1.992)	1.19 (2.082)	12.7** (5.907)	13.1** (6.069)	39.4*** (14.313)	37.9** (14.364)
R-squared	0.527	0.521	0.185	0.177	0.199	0.204	0.026	0.026	0.032	0.032	0.049	0.049	0.119	0.117
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Time FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Obs.	105,420	104,084	105,420	104,084	105,420	104,084	105,420	104,084	105,420	104,084	105,402	104,084	105,420	104,084

Note: *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. This table reports the coefficients and standard errors clustered at the state level obtained using equations 1 (panel A) and 2 (panel B). The dependent variables represent the mail volume per 10,000 individuals with credit scores, in aggregate and for each of the six lender categories analyzed: FinTech-Bank partnerships, finance companies, FinTech lenders, payday lenders, specialist banks, and mainstream banks. Rate is the key explanatory variable in panel A and equals 1 for high-rate states, and 0 otherwise. The key explanatory variables for panel B are indicator variables for the credit score category (subprime, VantageScore credit score lower than or equal to 660; near prime, VantageScore credit score higher than 660 and lower than or equal to 719; low prime, VantageScore credit score higher than 719 and lower than or equal to 792; and high prime, VantageScore credit score higher than 792) and the level of the state consumer finance rate ceiling (with high and low). Control variables include financial and demographic characteristics such as age, income level, the presence of children in the household, whether the home is owned or rented, ethnicity, residence type, household head's level of education, and the state-level GDP. The VantageScore credit score is included only among controls used for regression results presented in panel A. Source: Mintel Comperemedia, Bureau of Economic Analysis, and Federal Reserve Bank of New York Consumer Credit Panel/Equifax.